Missouri Department of Natural Resources
Regulatory Impact Report
In Preparation for Proposing
An Amendment to 10 CSR 20-7.015

Division/Program: Division of Environmental Quality, Water Protection Program

Rule number: 10 CSR 20-7.015 Rule title: Effluent Regulations

Type of rule action: Amendment to Existing Rule

Nature of the rulemaking: Prescribes environmental standards

Submitted by

John Madras 11/21/12

Program Director Date

Missouri Department of Natural Resources
Regulatory Impact Report
For
Proposed Amendment to 10 CSR 20-7.015

Applicability: Pursuant to Section 640.015 RSMo, "all rulemakings that prescribe environmental conditions or standards promulgated by the Department of Natural Resources...shall... be based on the regulatory impact report...." This requirement shall not apply to emergency rulemakings pursuant to section 536.025 or to rules of other applicable federal agencies adopted by the department "without variance."

Determination: The Missouri Department of Natural Resources has determined this rulemaking prescribes environmental conditions or standards and verifies that this rulemaking is not a simple unvarying adoption of rules from other federal agencies. Accordingly, the Department has produced this regulatory impact report which will be made publicly available for comment for a period of at least 60 days. Upon completion of the comment period, official responses will be developed and made available on the agency web page prior to filing the proposed rulemaking with the Secretary of State. Contact information is at the end of this regulatory impact report.

1. A description of the environmental conditions or standards being prescribed.

There are a number of revisions that will be proposed for this regulation. The amendment is being undertaken in conjunction with a concurrent amendment to 10 CSR 20-7.031 *Water Quality Standards*. The following is a brief explanation listing the planned revisions:

a.) **Adoption of Federal Bypass Definition and Requirements to Report Sanitary Sewer Overflows.** The federal definition regarding "bypass" will be adopted. This will serve to standardize and correct commonly used terminology, and it is intended to reduce confusion by aligning state with federal requirements. Utilizing the federal language will allow dischargers to concern themselves with meeting the existing federal requirements and eliminate concerns about how state rules may differ from federal. Language will also be added to the rule that will allow wet-weather bypasses to be reported via discharge monitoring reports for cases where water quality concerns are not expected. Sanitary Sewer Overflows will be defined as water that escapes the collection system and the requirement to report Sanitary Sewer Overflows will be retained.

b.) **Disinfection Requirements.** A number of changes will be proposed regarding disinfection requirements. The rule will be reorganized to assemble all of the disinfection requirements into one paragraph. In response to an interim objection made by the U.S. Environmental Protection Agency (EPA) in 2010, short-term E. Coli limits are currently being included in permits in addition to the long term limits that reflect the timeframe of the water quality standards for bacteria. Provisions to require these short-term bacteria limits will be added to the rule. The Clean Water Commission also directed staff to reduce the frequency of E.

Coli monitoring for wastewater treatment systems with design flows of 100,000 gallons per day or less, and permits issued by the department currently reflect this monitoring frequency. The rule will be revised to codify this directive. For these smaller systems the monitoring frequency will be reduced from weekly to monthly or quarterly depending upon each facility's monitoring requirements for other pollutants. Lastly, a default equation used to estimate E. Coli decay will be eliminated. E. Coli decay considerations will instead be allowed under a new rule provision that will require applicants to conduct a site specific decay study.

c.) **Monitoring Requirements for Facilities that Discharge Nutrients.**

A provision will be added to the rule that requires all facilities to conduct quarterly monitoring for total nitrogen and total phosphorus and report effluent concentrations for a minimum of one permit cycle (five years), provided they commonly discharge nutrients.

d.) **Whole Effluent Toxicity (WET) Testing.** Provisions detailing the requirements regarding WET testing will be added to the rule. These requirements are routinely included in permits as required by 10 CSR 20-7.031(3)(D)2., are required to be conducted by properly trained people under 10 CSR 20-6.010(8)(A)4., and are to be conducted according to the methods prescribed by the federal regulations (40 CFR 136). Requirements for both chronic and acute WET tests will be added. The language will reflect current permitting practice. The purpose of this requirement is to assure that effluent does not have constituents that are toxic to aquatic life in toxic amounts.

e.) **Losing Stream Effluent Limits for Nitrates.** A provision will be added to clarify that effluent limits for nitrates will be applied to facilities that discharge to losing streams in cases where specific drinking water wells may be impacted. Under this provision applicants may conduct a study in the same manner as the Missouri Risk Based Corrective Action guidance to determine if limits are necessary.

f.) **Electronic Reporting.** A provision will be added to allow urgent reporting to be done electronically. Traditionally this reporting was required by telephone within 24 hours, followed by written notification within five working days.

g.) **Replace Water Quality Impact Studies with a Reference to Antidegradation Requirements.** Language will be modified in the "all other waters" section of the rule to eliminate the reference to water quality impact studies and to add a reference to Antidegradation requirements for new or expanded discharges.

h.) **TMDL Effluent Limits.** A provision will be added that will specify that permits shall include effluent limits prescribed by a TMDL upon renewal of the permit. The existing rule requires permits to be opened and modified once a TMDL is completed. The effluent limits prescribed by the TMDL shall reflect appropriate compliance schedules and technology or follow the TMDL implementation plan if one is developed.

i.) **Flow-Tiered Effluent Limits.** Flow-tiered limits will be explicitly allowed under a new provision. Flow-tiered limits allow for higher effluent limits provided there is sufficient flow in the receiving stream. This new provision will be accompanied by a requirement to conduct ongoing in-stream flow measurements to support those limits.

j.) **Use of Local Stream Data to Develop Effluent Limits.** The quality of receiving waters can affect the toxicity of certain effluents. As an example, the toxicity of certain metals is dependent upon the hardness of the receiving water. A provision will be added to the rule that will explicitly allow the use of local receiving stream or lake data to establish effluent limits.

k.) **Elimination of Schedules to Comply with Phosphorus Effluent Limits in the Table Rock and Taneycomo Watersheds.** The existing rule includes schedules to comply with phosphorus effluent limits for dischargers in the Table Rock and Taneycomo Lake watersheds. Rule language will be eliminated because the deadlines for compliance have already passed and the schedules are no longer germane.

l.) **Replace Five-Year Deadline For Disinfection With Appropriate Schedules.** The existing rule requires permits to include a five-year schedule to disinfect with a backstop deadline of December 31, 2013. As part of the concurrent revision to 10- CSR 2-7.031 *Water Quality Standards*, a number of streams that were once unclassified will be classified for whole body contact. Upon classification, facilities that discharge to these waters will need some time to upgrade their facilities to install disinfection equipment. The revision will include a provision that will allow the department to insert appropriate schedules of compliance into the permits of these facilities and will eliminate the backstop deadline and five-year schedule. In practice disinfection will be required as soon as practicable (likely within two or three years), unless other upgrades at the facility are needed.

m.) **Allow Reduced Monitoring Frequency For Regular and Well-Functioning Facilities.** Language will be added and revised to allow permits to be written that have a reduced monitoring frequency for facilities that demonstrate that their effluent has a limited variability and that consistently comply with permit limits.

n.) **Clarification and Reorganization.** Several parts of the rule will be reorganized and clarified. For example, the pH, bacteria, and nutrient requirements will be gathered into the general conditions section so that the requirements do not need to be repeated in all of the other sections of the rule. Several rule references will be updated and corrected. A subsection in the general conditions section will be added to clarify all of the various authorities that the department has for deriving effluent limits. These include technology based limits, water quality based limits, limits from federal effluent guideline regulations, limits prescribed by TMDLs, limits derived from Antidegradation, stormwater limits as prescribed by 10 CSR 20-6.200, and limits that result from legal agreements.

A subsection will be added to clarify the authority the department has to develop schedules of compliance for achieving effluent limits. The language is currently in 10 CSR 20-6.010, and for organizational reasons it is best included in the effluent rule.

Language specifying that monitoring events need to be evenly spaced in time will be modified to simply say that sampling needs to be representative of the discharge during the period in that the sampling covers (i.e. daily, weekly, seasonal, etc.).

An unnecessary, redundant subsection requiring compliance will be eliminated.

Language will be clarified such that wastewater treatment plants that treat domestic waste or that receive and treat significant amounts of organic loading must meet the more protective losing stream limits for those facilities that that discharge to those settings.

In some cases rule language will be revised simply to clarify meaning, to adopt proper regulation style, and to correct or update certain rule references. It is also worth noting that the department intends to revise the standard conditions for NPDES permits in conjunction with this rulemaking effort.

2. A report on peer-reviewed scientific data used to commence the rulemaking process.

The Water Protection Program has an organized stakeholder group called the Water Protection Forum which advises the Program regarding issues related to water quality protection. The Water Protection Forum meets regularly and includes individuals who represent municipal sewer utilities, wastewater industry members, the agricultural industry, environmental consultants, technical and legal professionals, environmental advocacy groups, and other professionals and citizens interested in managing and protecting Missouri's waters. The Water Protection Forum formed a subcommittee whose purpose was to gather input and ideas regarding potential revisions to this rule. The subcommittee met six times between March of 2011 and October of 2012 to discuss this rulemaking and to advise the department regarding specific issues. Many of the details of those discussions will be incorporated into this rule revision.

Numerous other published sources and references were used in the development of this rulemaking process. To provide for an organized review, each element of the rulemaking will be addressed below.

a.) **Adoption of Federal Bypass Definition and Refinement of the Prohibition of Sanitary Sewer Overflows.** The primary source for discussion was the federal regulation, 40 CFR 122.41(m). Discussion also relied on language found in the standard conditions that are included in all Missouri NPDES permits.

b.) **Disinfection Requirements.** An order of the Clean Water Commission (January 11, 2011) regarding E. Coli monitoring frequency for bacteria, served as primary guides for this revision. In addition, the fundamentals for developing water quality criteria for bacteria were largely based on two documents, Ambient Water Quality Criteria for Bacteria —1986,

EPA 440/5-84-002, January 1986 and Implementation Guidance for Ambient Water Quality Criteria for Bacteria —1986. EPA-823-D-00-001, January 2000.

c.) **Monitoring Requirements for Facilities that Discharge Nutrients.** Nutrient criteria for lakes were developed in a recent revision to 10 CSR 20-7.031. These criteria were submitted to EPA, and a portion of the criteria was rejected. The department is working to develop revised nutrient criteria; however, they will not be included with this rulemaking. This correspondence was used as a basis for the proposal to require monitoring only for nutrients at this time.

d.) **Whole Effluent Toxicity (WET) Testing.** The primary sources for this element were the federal reference methods for WET testing in 40 CFR 136, paragraph (3)(D)2. Of 10 CSR 7.031 *Water Quality Standards*, and paragraph (8)(A)4. of 10 CSR 20-6.010 Construction and Operating Permits.

e.) **Losing Stream Effluent Limits for Nitrates.** The primary source for this element was Table A of 10 CSR 20-7.031 *Water Quality Standards*, which establishes the Nitrate criteria for drinking water supplies and groundwater. In addition, the Departmental Missouri Risk Based Corrective Action Technical Guidance was used in the discussion.

f.) **Electronic Reporting.** None.

g.) **Replace Water Quality Impact Studies with Reference to Antidegradation Requirements.** None.

h.) **TMDL Effluent Limits.** None.

i.) **Flow-Tiered Effluent Limits.** The language was based on a written proposal made by one of the Effluent Rule Workgroup stakeholders.

j.) **Use of Local Stream Data to Develop Effluent Limits.** None.

k.) **Elimination of Schedules to Comply with Phosphorus Effluent Limits in the Table Rock and Taneycomo Watersheds.** None.

l.) **Replace Five-Year Deadline For Disinfection With Appropriate Schedules.** None

m.) **Allow Reduced Monitoring Frequency For Regular and Well-Functioning Facilities.** The language was based on a written proposal made by Effluent Rule Workgroup stakeholders.

n.) **Clarification and Reorganization.** None.

3. A description of the persons who will most likely be affected by the proposed rule, including persons that will bear the costs of the proposed rule and persons that will benefit from the proposed rule.

All, or nearly all, of the facilities that are issued NPDES permits by the department will be affected by this rule amendment. In some cases the rules will establish requirements that are more stringent than is currently the case. In other cases, the rule will provide flexibilities that will relieve certain permit holders of requirements. In all cases the changes will be made so that the existing uses of the State's water bodies will be maintained. In general, Publicly Owned Treatment Works (POTWs) and private wastewater treatment systems are supported by ratepayers. In most situations, residential customers represent the largest sector of ratepayers. Some systems, however, have large industrial or commercial customers that pay a significant percentage of the costs to build and operate these systems. These ratepayers will bear the costs or the savings of these proposed changes. A detailed analysis of each element is provided below:

a.) **Adoption of Federal Bypass Definition and Refinement of the Prohibition of Sanitary Sewer Overflows.** Because the federal bypass definition currently applies to all dischargers in Missouri, the department does not expect that facilities will be affected by this rule clarification. This amendment will serve to standardize and correct commonly used terminology. Utilizing the federal language will allow dischargers to concern themselves with meeting the existing federal requirements and eliminate concerns about how state rules may differ. The federal rule requires reporting of bypasses, and the proposed revision will allow wet-weather bypasses to be reported via discharge monitoring reports for cases where water quality concerns are not expected. The rule will define Sanitary Sewer Overflows retain the requirement that overflows events be reported. The overarching purpose of the federal bypass requirement is to assure that secondary treatment is provided unless there is no feasible alternative, so that treatment is maximized, thus protecting the receiving waters.

b.) **Disinfection Requirements.** As part of the concurrent revision to 10 CSR 20-7.031 *Water Quality Standards* "fishable/swimmable" uses will be extended from approximately 25,025 miles of stream to a total of 115,732 miles. Please refer to the Regulatory Impact Report of that rulemaking for a discussion of this extension of the "fishable/swimmable" use. Most facilities that discharge into these newly designated streams will be required to demonstrate that their effluent will not cause violations of the E. Coli criteria, and most will be required to disinfect their effluent. The *Water Quality Standards* rule will exempt some facilities from disinfecting if a use attainability analysis demonstrates that whole body contact use is not attainable. In addition to the current requirement to meet long-term limits for E. Coli, this revision will codify short-term limits as well. The monitoring frequency for bacteria will be determined in accordance with the direction provided by the Clean Water Commission. Facilities that are designed to treat 100,000 gpd or less will be required to monitor for E. Coli on a less frequent basis, while the larger facilities will be required to monitor at least weekly. The proposed revisions will serve to benefit people who recreate in or on the affected water bodies. Effluent that is not disinfected contains bacteria and pathogens that carry a risk for infection and illness. This risk is higher for the young, pregnant women, the elderly, and everyone that have compromised immune systems.

c.) **Monitoring Requirements for Facilities that Discharge Nutrients.** The rule will affect all NPDES permit holders that typically discharge nutrients by requiring the monitoring

and reporting of the concentration of total nitrogen and total phosphorus on a quarterly basis. This will benefit the department and the public by providing information that can be used to understand the effectiveness of various treatment technologies and how different facilities are able to manage the concentration of these pollutants in their effluent. The data will help to inform future potential regulatory or voluntary nutrient management efforts.

d.) **Whole Effluent Toxicity (WET) Testing.** Wet testing requirements are currently included for NPDES permits that may discharge toxic constituents in toxic amounts. The proposed rulemaking will serve to clarify these requirements. In general, WET testing is required for facilities that are routinely exceeding their design flow, facilities for which water quality based effluent limits have been developed (besides ammonia), and for facilities that handle toxic substances or have pretreatment industries that handle these compounds. A Toxic Identification Evaluation (TIE) and a subsequent Toxic Reduction Evaluation (TRE) will be required where persistent lethality toxicity is demonstrated by WET tests. This will serve to protect aquatic life in these receiving waters by addressing the cause of the toxicity. This, in turn, will help to preserve the fishable use of the subject waters, having the associated direct and indirect economic benefits.

e.) **Losing Stream Effluent Limits for Nitrates.** The proposed rule will only affect those NPDES permit holders that discharge to losing streams and are located where they may affect specific drinking water wells. Those who drink from these wells are expected to benefit from this protection. Groundwater that exceeds the nitrate criteria is not suitable for drinking and has been known to cause a potentially fatal blood disorder in infants known as methemoglobinemia or "blue-baby" syndrome. This exposure reduces the oxygen-carrying capacity of the blood. Moderate symptoms include diarrhea, vomiting, and lethargy. As the exposure becomes more severe infants will begin to show more obvious symptoms of cyanosis and progress until they have trouble breathing. Nitrate effluent limits are expected to protect the groundwater for this drinking water use.

f.) **Electronic Reporting.** The proposed rule will include an optional provision that will allow NPDES permit holders to fulfill their requirements to report bypasses and sanitary sewer overflows via electronic reporting, replacing their current obligation to report via telephone. This may make reporting less burdensome for the NPDES permit holders. It will also streamline the manner in which the department accepts urgent reports, and is expected to save some department staff resources.

g.) **Replace Water Quality Impact Studies with Reference to Antidegradation Requirements.** This proposed change is not expected to directly affect NPDES permit holders or the department. The change serves to reflect current practice.

h.) **TMDL Effluent Limits.** NPDES permit holders that discharge to impaired waters will be affected by this rule change. Under the current rule permits are to be modified upon completion of a TMDL. The proposed amendment will require permit writers to insert TMDL obligations in permits when the permit is being modified. The proposed provision will also allow schedules that follow the TMDL implementation plan, or in their absence, appropriate schedules of compliance to meet the effluent limits prescribed in the TMDL.

This will enable a better engineered response to situations in which some water use is impaired. It will be intended to better serve the NPDES permit holder, allow the department to make appropriate decisions regarding permit requirements for these situations, and it will provide the most cost effective and appropriate response to the public who may be affected by the impaired use.

i.) **Flow-Tiered Effluent Limits.** This is an optional provision that will explicitly allow flow-tiered limits for NPDES permit holders. Flow-tiered limits allow for higher effluent limits provided there is sufficient flow in the receiving stream. NPDES permit holders wishing to include flow-tiered limits will only do so if they see a compliance advantage to this arrangement. Effluent limits written in this manner will provide flexibility but will not cause impairment of existing water uses; therefore, users of these waters are not expected to be impacted.

j.) **Use of Local Stream Data to Develop Effluent Limits.** This is an optional provision that NPDES permit holders may utilize when the characteristics of their receiving stream affects the toxicity of certain pollutants. NPDES permit holders that wish to use this method of calculating effluent limits will have to provide the necessary water quality data. The general public is not expected to be impacted because existing water uses will be maintained when NPDES permit holders request to use this provision.

k.) **Elimination of Schedules to Comply with Phosphorus Effluent Limits in the Table Rock and Taneycomo Watersheds.** This amendment will simply remove deadlines that have already passed and it is not expected to affect NPDES permit holders, the public, or other entities.

l.) **Replace Five-Year Deadline For Disinfection With Appropriate Schedules**. This amendment will affect facilities that will face disinfection requirements as the water they discharge to become classified for whole body contact under the concurrent *Water Quality Standards* revision (10 CSR 20-7.931). In practice disinfection will be required as soon as practicable (likely within two or three years), unless other upgrades at the facility are needed.

m.) **Allow Reduced Monitoring Frequency For Regular and Well-Functioning Facilities.** This amendment will affect few facilities. It will allow less frequent effluent monitoring for those facilities that consistently meet effluent limits and have effluent concentrations that do not vary significantly.

n.) **Clarification and Reorganization.** The proposed changes are intended to improve the organization of the rule and to clarify certain provisions and requirements that already exist. These changes are not expected to directly affect NPDES permit holders, the public, or other entities.

4. A description of the environmental and economic costs and benefits of the proposed rule.

It is very difficult to estimate the economic costs and benefits associated with this rulemaking. For costs and benefits associated with the expansion of waters of the State that presume "fishable/swimmable" uses, please refer to the concurrent Regulatory Impact Report that has been prepared for the revision to 10 CSR 20-7.031.

The remainder of environmental and economic costs and benefits of the proposed rule are broken into the elements as follows:

a.) **Adoption of Federal Bypass Definition and Refinement of the Prohibition of Sanitary Sewer Overflows.** The federal definition regarding "bypass" will be adopted to reduce confusion and align the state regulation with federal requirements. The revision will serve to standardize and correct commonly used terminology. Because these requirements already are in place in federal regulation, the revision is not expected to have any environmental and economic costs associated with it. A provision will be added to allow wet-weather bypasses to be reported via discharge monitoring reports for cases where water quality concerns are not expected. This provision is expected to reduce costs both for facilities that are required to report and for department staff who must receive and track these reports.

Requirements to report Sanitary Sewer Overflows will be retained. This provision is not expected to result in any environmental or economic costs or benefits because the existing NPDES standard conditions currently include this language.

b.) **Disinfection Requirements.** 10 CSR 20-7.031 *Water Quality Standards* is under concurrent revision. The RIR associated with that rulemaking details the environmental and economic costs and benefits associated with extending whole body contact and secondary contact recreational uses to considerably more waters of the state.

Short-term E. Coli limits are currently being imposed in all NPDES permits that require disinfection. This practice came in response to an interim objection made by the EPA in 2010. Disinfection processes are typically designed to achieve total kill and short-term limits should pose no additional burden so long as the system is being operated properly and there are no extended process upsets.

The rule currently requires weekly monitoring, but many of the smaller facilities brought a concern to the clean Water Commission that this burden was unreasonable. Effluent samples collected for bacteria analysis are time sensitive, and samples must be delivered for analysis as soon as possible. Samples may be held for approximately six hours before the quality of the analysis may be questioned. This creates a logistics burden for facilities that do not have the onsite capability to run their own E.Coli analyses. As a result of these concerns the Clean Water Commission directed staff to reduce monitoring frequency for those facilities that are designed to treat 100,000 gpd or less. Most facilities that conduct on-site E. coli analyses rely on a proprietary analytical system that retails for approximately $4,000. A survey of laboratories indicates that the individual tests cost approximately $50. For the smaller systems the proposed monitoring frequency will be monthly or quarterly. Extending the calculation for these facilities to estimate annual costs yields $350 or $150

respectively. Monitoring helps to identify when the disinfection system is not functioning properly, so timely corrections can be made. Timely corrections will help reduce the risk of those who recreate in and on these waters.

There are no environmental or economic costs and benefits associated with elimination of the default E. Coli decay equation because applicants will still be provided a means by which they can conduct a study to quantify E. Coli decay.

c.) **Monitoring Requirements for Facilities that Discharge Nutrients.** For all NPDES permit holders that typically discharge nutrients a provision will be added that requires quarterly effluent monitoring for total nitrogen and total phosphorus and the reporting of those values. The proposed rule will require this monitoring for five years. Based on an Internet survey, the cost to analyze effluent samples range from approximately $15 to $25 per test. Assuming the highest values, the annual expense for each facility monitor for both pollutants is expected to be $200 per year or less. It is estimated that the monitoring requirements will be extended to most site-specific NPDES permits which includes about 2,600 facilities statewide. Using these estimates the total monitoring costs will be approximately $520,000 per year or less. Again, this monitoring requirement will expire for most facilities after five years. The data collected will be useful for managing nutrient pollution. This data will be used to understand the capabilities of different treatment technologies.

d.) **Whole Effluent Toxicity (WET) Testing.** Because WET testing is routinely included in permits as required by 10 CSR 20-7.031(3)(D)2., there are no direct environmental and economic costs and benefits associated with the proposed revision. These costs are already being born by the affected NPDES permit holders. The proposed regulation simply serves to better define and outline the requirements that are already being imposed in permits.

e.) **Losing Stream Effluent Limits for Nitrates.** A provision will be added to clarify that effluent limits for nitrates will be applied to facilities that discharge to losing streams in cases where specific drinking water wells may be impacted. The number of facilities affected by this provision is not known, but is expected to be less than one hundred statewide. Many existing permits already have nitrate effluent limits to protect groundwater for drinking water use. To meet nitrate effluent limits most facilities will be required to or have already upgraded the plant to denitrify. This significantly increases the capital and operating expenses because the plant must be designed to include an anoxic environment and have sufficient carbon. An external carbon source such as methanol or molasses often has to be added. Because of the variability of existing technology and the unknown number of affected facilities, a meaningful cost estimate is not feasible. The environmental benefit is also difficult to assess. Besides averting the potential health risks associated with drinking water from a nitrate contaminated well, these protections also potentially save the cost of replacing a contaminated drinking water source.

f.) **Electronic Reporting.** There are likely some savings associated with utilizing the proposed provision that will allow electronic reporting. These savings for both the NPDES permit holders and the department are likely negligible.

g.) **Replace Water Quality Impact Studies with a Reference to Antidegradation Requirements.** This revision is not expected to have any environmental and economic costs or benefits because it will reflect current practice.

h.) **TMDL Effluent Limits.** This proposed revision will provide a better mechanism to schedule upgrades that may be necessary to meet TMDL effluent limits. This mechanism will allow permit writers to adopt the TMDL implementation schedules or to impose schedules of compliance that are appropriate to address the impairment. The proposed rule will also require the permit to address the TMDL upon renewal instead of requiring that permits be modified once a TMDL is complete. While not quantifiable, this approach will provide most NPDES permit holders with the necessary time to study treatment options and to construct the most appropriate option or to obtain equivalent non-point source reductions should a water quality trading system be developed and implemented. Overall, the revision to this element of the rule will likely result in a cost savings, but the savings is not easily quantified. Water quality impairments will be appropriately addressed, so environmental benefits of the TMDL will be maintained.

i.) **Flow-Tiered Effluent Limits.** Flow-tiered effluent limits will likely result in a minor savings for those facilities that choose this option. It is important to remember that facilities that choose to utilize flow-tiered effluent limits will incur the additional expense of ongoing in-stream flow measurements. Monitoring frequency may also be increased. Therefore, cost savings are expected to be negligible. In addition, flow-tiered effluent limits will continue to be protective of the receiving water's uses.

j.) **Use of Local Stream Data to Develop Effluent Limits.** This provision is expected to provide a minor amount of flexibility. The use of local stream data is not expected to result in a change in treatment technology. Instead effluent limits developed using local data will, for the most part, provide a compliance margin of safety. Because of this, there are few environmental or economic costs or benefits associated with this proposed revision.

k.) **Elimination of Schedules to Comply with Phosphorus Effluent Limits in the Table Rock and Taneycomo Watersheds.** Because these deadlines have already past there are few environmental or economic costs or benefits associated with this proposed revision.

l.) **Replace Five-year Deadline For Disinfection With Appropriate Schedules.** The costs and economic benefits associated with disinfection for those streams that are newly designated for whole body contact are addressed in the concurrent revision to 10 CSR 20-7.031 *Water Quality Standards*. The revision may provide some additional flexibility to those facilities that have to upgrade to meet water quality standards for other pollutants.

m.) **Allow Reduced Monitoring Frequency For Regular and Well-Functioning Facilities.** A few facilities may be able to reduce their effluent monitoring and reporting efforts. These changes are expected to have marginal economic benefits, but will have no environmental costs or benefits.

n.) **Clarification and Reorganization.** Rule reorganization and clarifications are expected to achieve negligible environmental or economic benefits. The only benefit is the time savings individuals may have when understanding and applying the regulation.

5. The probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenue.

Overall the probable costs to the department associated with this proposed regulation are negligible, and there may actually be a cost savings. Allowing urgent reporting to be done electronically may save some staff time. Using local stream data or developing flow-tiered effluent limits may require a bit more staff time. The remainder of the proposed changes is expected to have relatively minimal impact.

6. A comparison of the probable costs and benefits of the proposed rule to the probable costs and benefits of inaction, which includes both economic and environmental costs and benefits.

Estimating the costs associated with not adopting these proposed revisions is very difficult for the same reasons that it is difficult to quantify the benefits associated with these actions. In many cases, the proposed revision will provide flexibility to NPDES permit holders. Examples of this flexibility include the ability to report urgent matters electronically, the ability to choose to use local stream data to develop effluent limits, and the ability to develop flow-tiered effluent limits where they make sense. In other cases the rule is being updated to reflect current practices. Examples of this include the reduced bacteria monitoring frequency for facilities that have a design flow of less than 100,000 gpd, detailing the requirements for facilities that are subject to WET testing requirements, as well as adoption of the federal definitions for bypass and the retention of the prohibition of sanitary sewer overflows. Lastly is the case of imposing new monitoring requirements for nutrient monitoring, which is expected to cost approximately $520,000 per year or less for five years.

In most of these cases inaction does not produce savings or yield benefits. Regarding nutrient monitoring, the collection of this data may produce information that will inform a more efficient nutrient management scheme for the state. This, in turn, may realize considerable savings. Therefore, a definitive conclusion cannot be reached concerning the probable costs and benefits associated with inaction.

7. A determination of whether there are less costly or less intrusive methods for achieving the proposed rule.

There are no mechanisms that the department is aware of that are less costly or less intrusive than making these proposed changes. The department considered monthly monitoring for nutrients and rejected that frequency, reducing it to quarterly because of cost concerns. Again, this rulemaking is being conducted concurrently with 10 CSR 20-7.031 *Water Quality Standards*. Please see the associated Regulatory Impact Report regarding the extension of the requirement to disinfect to considerably more waters of the state under that proposed rulemaking.

8. A description of any alternative method for achieving the purpose of the proposed rule that were seriously considered by the department and the reasons why they were rejected in favor of the proposed rule.

To mitigate the immediate impact of the costs associated with disinfection, the department will establish a reasonable schedule that will allow the necessary upgrades. This rulemaking is being conducted concurrently with 10 CSR 20-7.031 *Water Quality Standards*, and the associated Regulatory Impact Report discusses the alternative methods considered.

For the remainder of the rule, department staff relied heavily on stakeholder discussions regarding the options and proposed rule language. In most cases the rule concepts were generally supported, but considerable refinement of rule language occurred as a result of these discussions. Very few, if any, discussions resulted in strong disagreement with the proposed rule revisions. Frequently specific rule wording was rejected in favor of better approaches, and these changes were largely supported by a consensus of stakeholders.

9. An analysis of both short-term and long-term consequences of the proposed rule.

There are a number of revisions that will be proposed for this regulation, and these revisions have both short-term and long-term consequences. The amendment is being undertaken in conjunction with a concurrent amendment to 10 CSR 20-7.031 *Water Quality Standards*. Please refer to that Regulatory Impact Report for a discussion of the short-term and long-term considerations of that rulemaking. The following is a brief explanation the consequences of the planned revisions:

a.) **Adoption of Federal Bypass Definition and Refinement of the Prohibition of Sanitary Sewer Overflows.** The federal definition regarding "bypass" will be adopted. This will serve to standardize and correct commonly used terminology, and it is intended to reduce confusion by aligning state with federal requirements. For some time EPA has been looking at their interpretation of the bypass provisions in federal regulation, and at some point may refine these interpretations through either additional guidance or rulemaking. In the short-term aligning state and federal requirements will allow NPDES permit holders to concern themselves with meeting the existing federal requirements and eliminate concerns about how state rules may differ. If interpretation or regulation at the federal level does evolve, Missouri can then decide how to respond to those changes.

b.) **Disinfection Requirements.** The proposed revision will address short-term concerns regarding protection of waters for whole body contact and secondary contact recreational uses with respect to E. Coli concentrations. In the long-term, EPA is evaluating more effective surrogate tests to demonstrate that effluent is being properly disinfected. This may mean a change to water quality standards and complete or partial substitution of effluent testing methods or values. The design of wastewater disinfection technology is not expected to change.

c.) **Monitoring Requirements for Facilities that Discharge Nutrients.** Requirements associated with the management of nutrients are likely to evolve in the long-term. Missouri may pursue numeric nutrient criteria for streams and dischargers in the State may be subject to multi-state TMDLs. Missouri is in the process of developing a nutrient management plan, and a nutrient trading program may be developed. All of these changes will likely result in refinements to the proposed rule language in the long-term.

In the short-term the proposed revision will lead to a better understanding of the nutrient reduction performance of various treatment technologies by requiring monitoring and reporting of total nitrogen and total phosphorus for all facilities that typically have these constituents in their effluent.

d.) **Whole Effluent Toxicity (WET) Testing.** In the short-term, the proposed revisions detailing the chronic and acute WET testing requirements will serve to publicize and clarify these requirements as they are routinely included in permits as required by 10 CSR 20-7.031(3)(D)2.. The Toxic Identification Evaluation (TIE) and a subsequent Toxic Reduction Evaluation (TRE), as required in cases where persistent lethality toxicity is demonstrated by WET tests, will serve to protect aquatic life and lead to timely correction of these toxicity issues.

e.) **Losing Stream Effluent Limits for Nitrates.** In the short-term the proposed provision will clarify that effluent limits for nitrates are to be applied to facilities that discharge to losing streams in cases where specific drinking water wells may be impacted. Under this provision applicants may conduct a study in the same manner as the Missouri Risk Based Corrective Action guidance to determine if limits are necessary. In the long-term more data may inform decisions regarding how to better and more efficiently protect groundwater as a drinking water source.

f.) **Electronic Reporting.** In the short-term this proposed provision will allow urgent reporting to be done electronically. In the long-term, electronic data is handier to store and to query for trends. Using this information, the department may be better able to target resources to address situations that require more active management.

g.) **Replace Water Quality Impact Studies with a Reference to Antidegradation Requirements.** In the short-term, this proposed revision will simply reflect current practice. No long-term considerations are expected.

h.) **TMDL Effluent Limits.** In the long-term the department expects that more TMDLs will developed that include implementation schedules. Under the proposed revision, these schedules will be able to be incorporated into permits. In the short-term, permits will include effluent limits prescribed by a TMDL upon renewal of the permit instead of modified once a TMDL is completed.

i.) **Flow-Tiered Effluent Limits.** The department is not aware of any contrast between the short-term or long-term consequences associated with this proposed revision.

j.) **Use of Local Stream Data to Develop Effluent Limits.** The department is not aware of any contrast between the short-term or long-term consequences associated with this proposed revision.

k.) **Elimination of Schedules to Comply with Phosphorus Effluent Limits in the Table Rock and Taneycomo Watersheds.** The department is not aware of any contrast between the short-term or long-term consequences associated with this proposed revision.

l.) **Replace Five-Year Deadline For Disinfection With Appropriate Schedule.** The department does not expect this change to affect facilities in the short-term. Most permits currently contain schedules for compliance to meet bacteria limits. Those that don't will receive appropriate schedules under this revision. The department is not aware of any long-term consequences associated with this change.

m.) **Allow Reduced Monitoring Frequency For Regular and Well-Functioning Facilities.** The department is not aware of any contrast between the short-term or long-term consequences associated with this proposed revision.

n.) **Clarification and Reorganization.** Beyond the obvious advantages of clarity and organization, the department is not aware of any specific short-term consequences associated with this proposed revision. In the long-term the reorganization is expected to be easier and clearer to modify because certain common requirements will now be located in one place instead of being spread throughout the rule.

10. An explanation of the risks to human health, public welfare or the environment addressed by the proposed rule.

There are numerous revisions to the rule that will be proposed. Please refer to question one regarding the purpose of the individual elements. The overarching purpose of 10 CSR 20-7.015 is to provide the authority and mechanism by which effluent limits can be imposed in NPDES permits so that water quality can be maintained for the uses prescribed in the *Water Quality Standards* rule (10 CSR 20-7.031). Disinfection requirements are focused at reducing the risk of exposure to bacteria and pathogens while people recreate in or on the water. The same is true for prohibiting sanitary sewer overflows and for reporting bypasses when they cause water quality concerns. Nitrate effluent limits are also intended to protect human health by limiting the concentration of nutrients in groundwater that may be used as a drinking water source. Implementation of certain TMDLs for waters that are impaired for human health reasons also fit the category of public health protections.

Many of the other provisions of the rule are expected to help protect the public welfare or the environment. The requirements associated with WET tests are focused on protecting aquatic life uses.

Other provisions of the rule are largely administrative, but in an overarching way they are expected to serve as protections of the public welfare or the environment.

11. The identification of the sources of scientific information used in evaluating the risk and a summary of such information.

Please refer to question two regarding the discussion of information used to develop this proposed rule. Much of the science of related to this proposal is directly related to the concurrent rulemaking of the *Water Quality Standards* rule (10 CSR 20-7.031).

12. A description and impact statement of any uncertainties and assumptions made in conducting the analysis on the resulting risk estimate.

Most of the risk estimates associated with this rulemaking is being evaluated in the concurrent *Water Quality Standards* rulemaking (10 CSR 20-7.031).

Regarding short-term E. Coli limits, the proposed values follow the same short-term to long-term ratios under the old fecal coliform bacteria standard. This ratio reflects the experience of the department and the stakeholders that this represents an appropriate level of protection. These values were not analyzed statistically and no calculations regarding risk were made.

The proposed provisions regarding nitrate effluent limits are also subject to uncertainties. The department is not aware of any drinking water wells that have been contaminated by nitrates from the effluent of wastewater treatment plants. A real risk, however, exists for this to occur. The stakeholders discussed this situation and generally agreed that the best approach is one in which department permit writers consider the proximity of drinking water wells when considering nitrate effluent limits. In general the default will be to not include these limits, but the proposed language will allow permit writers to place limits in cases where specific wells may be affected. This approach lacks certainty, but it was decided that the alternatives were not acceptable.

The department is not aware of any other uncertainties or assumptions that will affect the proposed rule revision.

13. A description of any significant countervailing risks that may be caused by the proposed rule.

No significant countervailing risks have been identified or associated with this proposed rule. There are several policy areas that are continually evolving at the state and federal level. These include bypass interpretations, nutrient management, and bacteria standards. The department expects changes in these areas to require future revisions to this rule, and therefore if the department identifies potential improvements to the rule they can certainly be addressed in future rulemakings.

14. The identification of at least one, if any, alternative regulatory approaches that will produce comparable human health, public welfare or environmental outcomes.

The department is not aware of any alternative regulatory approaches, particularly in light of stakeholder discussions over the past year.

15. Provide information on how to provide comments on the Regulatory Impact Report during the 60-day period before the proposed rule is filed with the Secretary of State.

Regulatory Impact Reports for current rule developments of the Water Pollution Control Branch, maybe found on the Water Protection Rule Development Web page: http://www.dnr.mo.gov/env/wpp/rules/wpp-rule-dev.htm.

The Regulatory Impact Report provides information on rule development. Please provide comments in the time frame indicated. The comment period for this Regulatory Impact Report is planned for November 7, 2012 through January 7, 2013. Written comments will be accepted through 5 p.m. on January 7, 2013.

Comments can be submitted by e-mail to John Rustige, john.rustige@dnr.mo.gov. E-mails must include the senders contact information (i.e., name, mailing address, telephone number). Comments may also be sent by mail to:

John Rustige
Missouri Department of Natural Resources
Water Protection Program
P.O. Box 176
Jefferson City, Missouri 65102-0176

After publication in the Missouri Register, there will be another opportunity for public input during the open comment period and public hearing related to the proposed rulemaking prior to rule adoption.

16. Provide information on how to request a copy of comments or the web information where the comments will be located.

Hard copies of received comments may be requested via telephone (573) 751-6825. Web information is provided above.